## C. Remarks

In the office action, claims 1-8, 12-13, 15-16, 19-20, 28-29, and 31-32 were rejected under 35 U.S.C. 102(b) as anticipated by the patent to Lennig et al, claims 9-11, 14, 17, 21-27 and 33-38 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lennig in view of Milewski et al., and claims 18 and 30 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lennig in view of Son et al. In order to more clearly define, and distinctly claim, the present invention from that of the prior art (including that cited herein), independent claims 1, 15 and 28 have been amended to recite that the system provides seamless access to <u>disparate</u> data sources through a single phone call and has <u>multi level voice grammar</u> capable of identifying the data sources that need to be accessed based on the user's voice commands.

The multi level voice grammar comprises means for identifying the context of the voice command, means for identifying the data sources that need to be accessed and means for identifying context specific requests. These means enable a user to access the disparate data sources without having to explicitly specify the data source from which particular information is to be accessed. For example, a user can give a command as 'get my calendar for July 7, after 4PM'. In this case, the invention, as recited in the amended claims, will retrieve the desired information without the user having to specify the data source where the calendar information will be available. Further, the multi-level voice grammar provided by the present invention enables the user to pose queries that pertain to different contexts in a single phone call session. This allows seamless navigation without having to explicitly switch between the disparate databases. The support for these recitations is found at pp 8 lines 12-24, pp 9 lines 1-24, and pp 10 lines 1-12. These functionalities are not provided by Lennig, when taken alone or in combination with the other references, including those cited herein.

The present invention set forth in claim 1, as amended, is directed to a system for providing voice activated access to information from a plurality of disparate data

sources in a single phone session. The system comprises a telephony platform providing an interface between various telephone networks and the system. A speech recognizer recognizes the voice commands of the user. The system has a multi-level voice grammar that spans relevant contexts for all the disparate data sources. This voice grammar further comprises means for identifying contexts of the voice commands that have been recognized by the speech recognizer and means for identifying the data sources pertaining to the identified contexts. The voice grammar also comprises means for identifying information desired by the user, pertaining to the identified contexts. The system includes several extractors for accessing the identified data sources and extracting the identified information desired by the user. The system also has an interpreter for parsing the voice commands recognized using the speech recognizer and the multi-level voice grammar. The interpreter also controls the telephony platform and the extractors for accessing the desired information.

Claim 15, as amended, is directed to a method for providing voice activated access to disparate data sources in a single phone call session. The user logs onto the system and issues voice commands. These voice commands are recognized and interpreted. The step of recognizing voice commands includes identifying the context of the voice commands and the data sources that need to be accessed for the identified contexts. Thereafter, information desired by the user, pertaining to the identified contexts, is identified. Subsequently, the desired information is extracted from the identified data sources and presented to the user.

Claim 28, as amended, is directed to a computer program product for implementing the method explained in claim 15 for providing access to disparate data sources in a single phone session.

Turning now to the references cited in the office action, the patent to Lennig et al. (US patent number 5,479,488) discloses a system for automating directory assistance using speech recognition. This patent is directed to a single type of data

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source, i.e., directories. It does not facilitate access to other types of data sources. The present invention, as per the amended claims, provides access to disparate data sources such as, but not limited to, email systems, Customer Relationship Management (CRM) systems, calendars, LDAP and the like. Access to disparate sources is provided in a single phone call. The user needs to merely state the data that he is interested in and the present invention, in accordance with the amended claims, identifies the data source from which such information is to be obtained and, thereafter, retrieves the desired information and presents it to the user. The patent to Lennig does not provide this facility.

The present invention, in accordance with the amended claims, allows multiple lexicons to support a wide extent of commands ranging from email look up to CRM queries. The multi-level grammar of the present invention identifies contexts corresponding to the voice commands as well as the data sources where the required information would be available. Also, it identifies the nature of information that the user is seeking through the voice command. The multi-level grammar, as per the amended claims, facilitates multiple types of commands from the user. For example, the user can give commands such as 'email regarding purchase order', 'appointment for Thursday afternoon' and the like. Although the patent to Lennig has multiple lexicons, they are all directed towards narrowing down the geography for the looked up number.

The present invention allows users, through a single phone call, to issue commands that seamlessly travel across multiple data repositories and allow for multiple actions such as retrieval of data and action on data. For example, the present invention is capable of retrieving emails, calendar information, CRM trouble tickets and the like. The present invention is also capable of performing actions on retrieved data such as transmitting data as SMS, outbound calling, SMS alert, fax and the like. All these facilities are not provided in the patent to Lennig, which is restricted to retrieving information from directories alone.

Turning now to dependent claims 19 and 31 of the present invention; the patent to Lennig utilizes a probabilistic model for matching lexemes (lexeme is a fundamental unit of lexicon of a language; e.g. go, went, gone, going are all lexemes of the term go). The present invention, as recited in the amended claims, relies on the speech recognition engine for recognizing speech. The application specific voice grammar of the present invention identifies the context of the voice command and, thereafter, attaches semantics to the voice commands. It also associates the appropriate data extraction action required for extracting the desired data from an appropriate database. For example, if the voice command is 'show me my upcoming appointments with Jim Smith', it will be converted to a format, 'get calendar data from Microsoft Exchange with Jim Smith in the subject line.

Referring to rejections to claims 9-11, 14, 17, 21-27 and 33-38; the patent to Milewski et al (US 6,501,834) relates to determining the communication status of an email sender. It mentions VoiceXML only with respect to rendering VoiceXML attachments at a receiving client in a 'communication status' monitor. The present invention, in accordance with the amended claims, uses VoiceXML for conducting dialogs with the end user. Further, in view of the amended claims 1, 15 and 25, the present invention clearly defines over Lennig and, therefore, also over Lennig in view of Milewski.

The patent to Son et al (US 6,212,408) is directed to a system and a method for allowing a communication device to accept voice commands from a user. It does not discuss data retrieval and presentation using VoiceXML. Further, Son et al. does not discuss the ability to handle multiple data source in a single phone call. Additionally, the ability to query a user for a user-id and a password, as recited in claims 18 and 30, clearly define over Lennig in view of Son et al. in accordance with the amended claims 1 and 25 wherein claims 1 and 25 define over Lennig as cited earlier in the remarks.

The other cited patents also fail to teach the present invention; the patent to

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Ahluwalia et al, (US 6,370,506) describes a communication device for transmitting information to a destination by associating a voice command with the destination and associating a signaling message with the voice command and with the destination. Although the Ahluwalia patent enables the user to access data with voice commands, it does not provide seamless navigation through a plurality of disparate data sources in a single phone call. Unlike the present invention, as per the amended claims, where the user can access multiple types of data sources in a single phone call, the Ahluwalia patent requires a user to call particular numbers for accessing particular data sources.

The patent to Rühl (US 6,411,893) discloses a system for vehicle navigation using voice commands and is directed to a single type of data source, i.e., database containing locality names. The present invention, as recited in the amended claims, provides seamless access to disparate data sources in a single phone session.

The patent to Brademann (US 6,504,914) discloses a method of providing a customer with dialog control and access to the desired information. This patent provides a dialog system, which is similar to a menu driven approach. Therefore, the user needs to answer certain questions relating to the information required before he actually gets the data. The questions are usually of the format that would help the system to identify the data source where the desired information can be accessed. Therefore, the system does not provide seamless access to disparate data sources. Further, the kind of data accessible through such a system is limited to static information like product information, news and the like.

The amended claims clearly define voice activated access to information from disparate data sources. This multiple level voice grammar, as recited in the amended claims, enable seamless access to these disparate data sources.

Applicants have made of record herein the patents referred to in the present specification as well as to a published patent application by Edmonds et al. (WIPO

patent application number WO 01/ 76212 A1). However, the claims as amended clearly define over the Edmond patent application. The Edmond patent application does provide access to disparate data sources but requires the user to input information specifying the data source where such information will be available. The Edmond patent does not provide seamless access to disparate data sources. It does a keyword search on the voice command to identify the data source specified by the user. In other words, the user is required to specify the data source that he wants to access. On the other hand, the present invention, in accordance with the amended claims, parses the user's commands and does a grammar analysis on the voice command to identify exactly what the user desires. Therefore, the scope of multi-level grammar, as per the amended claims, is much more encompassing and the user does not have to specify the data source where the required information would be present.
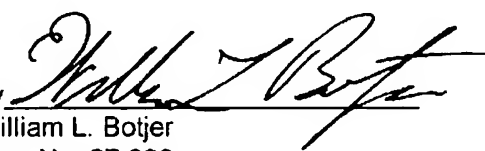
Finally, the claims, as amended, provide for traversing multiple types of data sources in a single phone call and optionally doing actions on the data (such as calling a phone number, or sending an SMS message). Additionally, the user does not have to answer questions relating to the kind of data required, as in a menu driven approach, thereby, seamlessly accessing disparate data sources. The user needs to simply issue voice commands requesting data of a particular type (e.g. mobile phone number of John) or action on a particular type of data (call John on mobile number), and the system retrieves the requested data or performs the desired action seamlessly.

In summary, the references cited in the office action and the by applicants do not disclose, or suggest seamless voice activated access to disparate data sources in a single phone call as set forth in the amended claims. The present system provides a level of functionality that is simply not present in the prior art, when taken alone or in combination. The improvements in functionality make clear that the invention defined in the present claims as amended is neither anticipated, nor rendered obvious over, by the prior art.

The present claims have been amended to highlight the distinctions of the present invention over the prior art and it is respectfully submitted that the claims are now clearly patentable over the art of record, and notice to that effect is earnestly solicited, If the Examiner has any questions regarding this matter, the Examiner is requested to telephone applicants attorney at the numbers listed below prior to issuing a further action.

Respectfully Submitted,

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